

ABSTRACT

A delivery system for a drug or bioactive agent includes an implantable pump and a delivery conduit that may be implanted in an organ or other tissue (e.g., the central or the peripheral nervous system) of a subject. A sensor is also implanted, and a controller unit receives the sensor output and directs drug delivery from within the patient pump accordingly. The sensor directly measures a primary biochemical material or state in the tissue or organ system, and the monitoring unit effects closed loop feedback control of the pump to achieve a desired end. The end may be the regulation of metabolism or maintenance of a stable metabolic or other state, or may be treatment regimen, e.g., by delivery of a dosage level or distribution of a drug in specific brain or nervous system tissue. The sensed material may be the agent itself, a metabolite, or a related native material, tissue state or condition.

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